

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN INVESTIGATION INTO THE OPERATIONS AND)
MANAGEMENT OF MOUNTAIN WATER DISTRICT) CASE NO. 96-126

O R D E R

Commission Staff has performed its financial review of Mountain Water District's ("Mountain") operations and herewith files its report containing the Staff's findings and recommendations. All parties to this proceeding should review the report carefully and provide written comments on or before June 13, 1997.

A hearing has been scheduled for June 24, 1997 in the Commission's offices for the purpose of examining witnesses on all issues in this case. Commission Staff will be available to testify as well as two of the Barrington-Wellesley management audit consultants; Mr. John Conley, Project Manager and Mr. Ron McCoy, Lead Consultant for Operations. Accordingly each party planning to present witnesses should file its witness list with the Commission, with service on all other parties, no later than June 13, 1997.

IT IS THEREFORE ORDERED that:

1. All parties shall file comments on the Staff Report no later than June 13, 1997.
2. All parties intending to present testimony at the hearing shall file their witness lists no later than June 13, 1997.

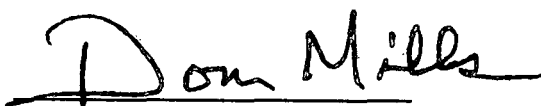
3. Mountain shall publish notice of the hearing pursuant to 807 KAR 5:011,
Section 8(5).

Done at Frankfort, Kentucky, this 30th day of May, 1997.

PUBLIC SERVICE COMMISSION


For the Commission

ATTEST:


Executive Director

COMMONWEALTH OF KENTUCKY
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In the Matter of:

AN INVESTIGATION INTO THE OPERATIONS)
AND MANAGEMENT OF MOUNTAIN WATER) CASE NO. 96-126
DISTRICT)

STAFF REPORT

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STAFF REPORT
ON
MOUNTAIN WATER DISTRICT
CASE NO. 96-126

A. Preface

On March 27, 1996, Mountain Water District ("Mountain") requested the Commission's assistance in conducting a review of its financial operations. The results of the financial review would become the basis of a rate study that would assist Mountain in achieving financial stability and providing economical and efficient service to its customers. By its Order issued on April 2, 1996, the Commission initiated this investigation into the operations and management of Mountain.

The investigation and the request for assistance in conducting a financial review were precipitated by several factors, including consistent and substantial operating losses, reports of line loss exceeding 30 percent, and concerns regarding past management of the District. In response to these concerns, the Commission directed a management audit of Mountain, which was conducted by the Barrington-Wellesley Group, Inc. at a cost of \$48,400. The management audit contained 42 recommendations for improvements, some of which are addressed herein because they affect pro forma expenses.

On March 5, 1997, Mountain filed a request for increased water and sewer rates pursuant to KRS 278.023, which requires Commission approval of agreements between federal agencies and water districts and associations as a result of federally funded

construction projects. In Case No. 97-112,¹ which involved Phase I construction of a new sewer treatment plant, Mountain requested an increase in both its water and sewer rates. The Commission approved the sewer rate increase, but denied the water rates because the construction project involved only sewer facilities. In denying Mountain's request for rehearing in that proceeding, the Commission suggested that Mountain consider filing a motion for emergency rate relief in this proceeding. Subsequently, Mountain filed such a request, which was approved by the Commission for water service rendered on and after May 2, 1997.

The Commission Staff ("Staff") performed a limited financial review of Mountain's test-period operations for the 1995 calendar year. Mark C. Frost of the Commission's Division of Financial Analysis performed the limited review on October 29 and 30, 1996, and February 18 and 19, 1997. Mr. Frost is responsible for the preparation of this Staff Report except for the determination of Operating Revenue; Section E. Rate Design; Section F. Cost of Service Study; and Exhibit's A, B, and I through K, which were prepared by Carryn Lee and Samuel Reid, Jr. of the Commission's Division of Rates and Research.

The emergency rates approved by the Commission by Order dated May 2, 1997, resulted in an interim increase in annual water revenues of \$1,014,788. Based on the

¹ Case No. 97-112, The Application of Mountain Water District of Pike County, Kentucky, for a Certificate of Public Convenience and Necessity to Construct, Finance and Increase Rates Pursuant to KRS 278.023, Final Order dated March 11, 1997; Rehearing denied by Order dated April 1, 1997.

findings contained in this report, Staff recommends that Mountain be granted a permanent increase in annual water revenues of \$1,395,321 and an annual line-loss surcharge of \$277,225 for a 3-year period.

Scope

The scope of the review was limited to obtaining information to determine whether the 1995 operating revenues and expenses were representative of normal operations. Insignificant or immaterial discrepancies were not pursued and are not addressed herein.

Sewer Operations

Originally, Staff's limited financial review was to include both the water and sewer operations. Since this case was initiated, the Commission granted Mountain approval in Case No. 97-112, to: construct a \$1,869,600 sewer project; incur the associated financing; and increase the sewer rates mandated by the U.S. Department of Agriculture's Rural Development ("RD").

During 1995 and 1996, Mountain operated two small package treatment plants. Until the sewer construction project is complete and the treatment plant is in operation, insufficient financial information is available upon which to project the sewer's revenue requirement. However, the rates approved in Case No. 97-112 are based on financial projections that are not related to past operation of the package treatment plants.

For the forgoing reasons, this report does not address Mountain's sewer operations, and does not contain a recommended change in the sewer rates approved in Case No. 97-112. However, Staff does recommend that the Commission place Mountain on notice that within a year from the completion of the construction approved in Case No. 97-112, Mountain should review its sewer operations and file for the appropriate rate relief if those rates prove insufficient.

B. Analysis of Operating Revenues and Expenses

Operating Revenues

Mountain reported total operating revenue for the test year of \$3,138,201. Of this amount, Mountain reported \$3,000,720 as revenue from water sales. The remainder is comprised of \$38,937 in customer late charges, \$18,446 in rent receipts from 2 properties and receipts for property damage by contractors. Mountain collected \$34,606 in service reconnection fees and received \$45,492 from Pike County Fiscal Court for: (1) collecting payments on package waste water systems; and, (2) Ky. DOT funding for removing water mains.

Staff prepared a detailed billing analysis, summarized in Exhibit A, which produced \$2,968,225 from test year water sales. Exhibit B contains a summary of a normalized billing analysis which includes an adjustment for sales to the former customers of Potter Water Company ("Potter Water") which now receive service from Mountain. The billing

analysis in Exhibit B is based on the interim rates approved by Order dated May 2, 1997. These adjustments resulted in an increase in test year revenue from water sales of \$1,047,283 for total test year water revenues of \$4,015,508.

Operating Expenses

In its 1995 Annual Report, Mountain reported test-period operating expenses of \$3,397,790. The following are Staff's recommended adjustments to Mountain's actual 1995 test-period operations for water service:

Salaries & Wages - Employees: Mountain's 1995 salaries and wages - employees expense was \$645,364. During 1995 and 1996 Mountain's staff consisted of 42 employees; however, during this two year period 13 employees were replaced and a new superintendent was hired. Given management problems experienced by Mountain during 1995 and 1996, an employee turnover rate of approximately 34 percent² is not surprising. This turnover coupled with the 1996 pay increases, demonstrates that Mountain's 1995 salaries and wages - employees expense is not representative of current or ongoing expense levels.

During the course of the field review, Staff advised Mountain that the rate-making criteria of "known and measurable" would be used to evaluate pro forma adjustments. An adjustment based on documented cost increases would constitute a known and

² 14 (New Employees) ÷ 42 (Staff Positions) = 33.33%.

measurable adjustment. Therefore, an adjustment to reflect Mountain's current staff level and the 1996 wage increases does meet the known and measurable criteria and has been included herein.

Mountain's 1996 employee pay increases ranged from 0.5 percent to 18 percent, with the majority of the increases in excess of 5 percent going to Mountain's field personnel. The Management Audit supports Mountain's wage increases with comparisons to the Kentucky Rural Water Association's study and the wages paid by the City of Pikeville for comparable positions. These comparisons revealed that, in general, Mountain's field personnel are paid below average, while clerical, plant operation, and office management employees are paid slightly above average.³

Mountain is attempting to correct the wage discrepancies noted by the Management Audit and to develop standardized wage levels among each employee job classification. The increased 1996 wages remain within the ranges used in the Management Audit comparisons, and for these reasons, the 1996 pay increases are reasonable and should be reflected in Mountain's pro forma operations.

During 1995 Mountain installed 414 meters which it capitalized and depreciated. The cost of labor incurred to install these new meters is also a capital cost which should be depreciated over the same period. Staff has estimated Mountain's labor cost

³ Management Audit report, page IV-5.

associated with the installation of new meters and has deducted this amount from pro forma operations, discussed elsewhere in this report.

Using Mountain's current staff level, the 1996 wages, and deducting labor which should have been capitalized for the installation of the new meters, Staff arrived at Mountain's pro forma salaries and wages - employee expense of \$931,637, as shown in Exhibit C. Accordingly, Staff recommends that salaries and wages - employee expense be increased by \$286,273.

Salaries & Wages - Commissioners: In 1995, Mountain reported salaries and wages - commissioners expense of \$79,073, which incorrectly included the salaries paid to Mountain's management. Mountain currently has five commissioners on its board and each is paid the maximum allowed by law. According to KRS 74.020(6), "a water district commissioner shall receive an annual salary of not more than \$3,600." Based on five commissioners being paid an annual salary of \$3,600, Mountain's salaries and wages - commissioners expense would be \$18,000, \$61,073 less than the amount Mountain reported. Therefore, Staff recommends that salaries and wages - commissioners expense be decreased by \$61,073.

Employee Pensions and Benefits: Mountain reported test-period employee pension and benefit expense of \$161,932. For each employee, Mountain currently pays the full cost of providing: (1) single health insurance coverage; (2) life and disability

insurance; and (3) an 8.82 percent contribution to the employee retirement account. If an employee opts for family or spousal health insurance coverage, the employee contributes \$28 every two weeks and Mountain pays the remainder of the premium.

The Management Audit noted that many companies have required employees to be responsible for a larger portion of their health insurance, especially for dependent or family coverage.⁴ The current trend is for companies to provide health insurance coverage for their employees, but to require the employees to pay for coverage for their family or spouse. For example, Kentucky State Government requires its employees to pay the difference between family/spousal and single insurance plans.

The Management Audit noted that, "There is a perception of internal inequity of salaries among employees."⁵ Mountain's current policy of paying a higher health insurance premium based on marital status and dependent coverage contributes to the internal pay inequity. The Commission has found it reasonable for rate-making purposes to allow utilities recovery of only the cost of providing single health insurance to their employees.

In the past the Commission has made the following two exceptions for the recovery of family/spousal health insurance: (1) when a utility is bound by a labor union

⁴ Ibid., page IV-8.

⁵ Ibid., page IV-3.

contract; or (2) when a utility can demonstrate that if an employee opts for single or no coverage, then that employee's wages are increased accordingly. Neither condition is true for Mountain. Staff, therefore, recommends that Mountain be allowed to recover only the cost of providing single health insurance to all employees for rate making purposes.

Using Mountain's current employee level of 42, the 1996 annual employee insurance premium of \$1,192,⁶ the employee retirement contribution, and deducting the percentage of this cost associated with installing new meters, Staff arrived at Mountain's pro forma employee pension and benefit expense of \$129,970, as shown in Exhibit D. Accordingly, Staff recommends that employee pension and benefit expense be decreased by \$31,962.

Purchased Water: Mountain reported a 1995 purchased water expense of \$986,180. In 1995, Mountain produced 20.948 percent of its water and purchased the remaining 79.052 percent from the following three sources: (1) 41.016 percent from the City of Pikeville ("Pikeville"); (2) 35.927 percent from the City of Williamson ("Williamson"); and (3) 2.109 percent from the Sandy Valley Water District.

⁶ \$92.15 (Single Health Premium) x 12 Months = \$ 1,106
 \$ 7.20(Life & Disability Premium) x 12 Months = + 86
 Annual Employee Insurance Premium \$ 1,192

Pikeville and Williamson increased their wholesale water rates charged to Mountain and, because Mountain protested the increased wholesale water rates, it paid only the amount that was not in dispute. The 1995 purchased water expense reflects the amount Mountain actually paid to Pikeville and Williamson and not the amount billed.

In Case No. 95-296,⁷ the Commission determined the wholesale rate that Pikeville could charge to Mountain is \$1.31 per 1,000 gallons. The Commission has no jurisdiction over the rate charged by Williamson and arrearages for past due purchases are currently in dispute. Applying Pikeville's wholesale water rate of \$1.31 per 1,000 gallons, Williamson's wholesale water rate of \$1.87 per 1,000 gallons, and Sandy Valley's actual wholesale water rate of \$1.90 to the actual amount of water purchased in 1995, Staff determined Mountain's actual purchased water expense was \$1,180,162, \$193,982 above the amount expensed.

In its 1995 Annual Report, Mountain reported a line loss of 27 percent. However, Staff's billing analysis shows that in 1995 Mountain sold 34,146,169 gallons less than it reported, which results in a corrected line loss of 30.69 percent.⁸ The Commission

⁷ Case 95-296, City of Pikeville, Kentucky Complainant v. Mountain Water District Defendant, order issued August 8, 1996.

⁸

Test Period Water Purchased/Produced	944,727,000 Gal.
Less: 1995 Water Sold	620,882,831 Gal.
Water Used by Mountain	- 33,905,000 Gal.
Line Loss	<u>289,939,169 Gal.</u>
289,939,169 (Line Loss) ÷ 944,727,000 (Water Produced) =30.69%.	

generally allows recovery of the cost of water lost up to 15 percent for rate-making purposes. Mountain's line loss of 30.69 percent far exceeds the Commission's allowable limit of 15 percent. Furthermore, a review of Mountain's four previous Annual Reports reveals that excessive line loss is a historical problem for Mountain.

By its letter dated August 11, 1995, the Commission reminded all water utilities under its jurisdiction of its line loss limitation policy. Mountain has had the opportunity to take the corrective action necessary to curb its line loss problem and is currently aware of the Commission's concern regarding this issue.

Staff recommends that Mountain's test-period purchased water expense be adjusted to include the 15 percent line loss limitation. Using the same ratios of test-period water purchased/produced, Staff determined that the 15 percent limitation would result in a pro forma purchased water expense of \$916,061, as shown in Exhibit E. Therefore, Staff recommends that reported purchased water expense be decreased by \$70,119.

Purchased Power: Mountain's 1995 purchased power expense of \$175,607 included \$26,715 for the electricity used to operate its water treatment plant. Since Staff has recommended that Mountain's line loss be limited to 15 percent, any costs directly related to such water production should likewise be excluded. Using the 15 percent line loss limitation, Staff has determined that the electricity expense for the

treatment plant would be \$19,970,⁹ and therefore recommends that purchased power expense be decreased by \$6,745.

Chemicals: Mountain's 1995 chemical expense of \$30,957 is directly related to water production, and should, therefore, be adjusted for the 15 percent line loss limitation. Staff has determined that chemical expense would be \$24,578,¹⁰ and therefore recommends that chemical expense be decreased by \$6,379.

Materials and Supplies: Mountain's 1995 materials and supplies expense was \$135,693. Staff analyzed the test-period invoices and determined that the following are capital expenditures that should be depreciated rather than expensed:

Flocculator Paddle System	\$ 2,715
Wall Fan with Shutter	\$ 490
10 H. P. G.E. Motor	\$ 1,175
5 H. P. Franklin Motor and Pump	\$ 2,005
15 H. P. Unimount Motor and Pump	\$ 586
5 H. P. Franklin Motor and Pump	\$ 2,005
Tele-Monitoring System	\$12,736

After consulting with a representative of the Commission's Engineering Division, Staff determined that the appropriate depreciable lives are: 10 years for motors, pumps,

⁹ \$26,715 (Electric) ÷ 197,905,000 (Gall. Produced) = \$ 0.00013
Multiplied by: Adjusted Gallons Produced x153,613,614
Pro Forma Electric - Treatment Plant \$ 19,970

¹⁰ \$30,957 (Chem.) ÷ 197,905,000 (Gal. Produced) = \$ 0.00016
Multiplied by: Adjusted Gallons Produced x153,014,747
Pro Forma Chemical Expense \$ 24,578

and flocculator paddle system; 5 years for the wall fan; and 20 years for the tele-monitoring system. Removing the capital expenditures from test-period operating expenses and depreciating them over their estimated useful lives results in a decrease to materials and supplies expense of \$21,712 and an increase to depreciation expense of \$1,584.¹¹

A further analysis of the test-period invoices revealed that the following expenditures are nonrecurring costs that should be amortized rather than expensed:

Soil Conservation	\$ 4,959
Rebuilt 10 H.P. G.E. Motor	\$ 319
Rebuilt 2 H.P. Baldor Motor	\$ 252
Rebuilt 30 H.P. Flygt Pump	\$ 2,399
Rebuilt 15 H.P. Motor and Pump	\$ 480
Rebuilt 40 H.P. Vertical Pump	\$ 796
Rebuilt 40 H.P. Vertical Pump	\$ 1,183

Staff determined that the appropriate amortization periods are 5 years for the rebuilt motors and pumps and 3 years for the soil conservation study. Removing the non-recurring expenditures from test-period operating expenses and amortizing over their

¹¹ \$8,486 (Pumps, Motors & Flocculator Sys) ÷ 10 (Years) = \$ 849
 \$490 (Wall Fan with Shutter) ÷ 5 (Years) = 98
 \$12,736 (Tele-Monitoring Sys) ÷ 20 (Years) = + 637
 Depreciation Expense \$ 1,584

estimated useful lives results in a further decrease to materials and supplies expense of \$10,388 and an increase to amortization expense of \$2,739.¹²

During 1995, the materials and supplies account also included expenses of \$2,798 for Thanksgiving and Christmas gift certificates for Mountain's employees. In prior decisions, the Commission has found that these types of costs should not be borne by the ratepayers. Therefore, Staff recommends that materials and supplies be decreased by an additional \$2,798 to reflect the removal of employee relations costs from test-period expenses.

Based on the aforementioned recommended adjustments, total materials and supplies expense has been decreased by \$34,898, depreciation expense increased by \$1,584, and amortization expense increased by \$2,739.

Contractual Services - Legal: During 1995, Mountain reported contractual services - legal expense of \$7,430 for the legal fees associated with Case No. 95-296. In 1996, Mountain paid its attorneys an additional \$22,589 in fees connected with that proceeding.

It is reasonable to expect that the issues litigated in Case No. 95-296 should not be repeated on an annual basis. Therefore, Staff recommends that the legal fees paid

12	\$5,429 (Rebuilt Pumps & Motors) ÷ 5 (Years) =	\$ 1,086
	\$4,959 (Soil Conservation Study) ÷ 3 (Years) =	<u>+ 1,653</u>
	Amortization Expense	\$ 2,739

in 1995 be removed from pro forma operating expense and the total cost of \$30,019 for Case No. 95-296 be amortized over a 3-year period. Therefore, operating expenses have been decreased by \$7,430 and amortization expense increased by \$10,006.

Insurance: Mountain's total 1995 insurance expense was \$78,702.¹³ Upon review of the 1996 invoices, Staff noted that Mountain's insurance premiums had increased. Since the 1996 premiums represent Mountain's on-going insurance cost, Staff is of the opinion that they should be reflected in pro forma operating expenses. Based on the 1996 insurance premiums and the pro forma salaries recommended herein, less the percentage of workers' compensation cost associated with installing new meters, Staff has calculated a pro forma insurance expense of \$109,264, as shown in Appendix E. Therefore, insurance expense has been increased by \$30,562.

Management Audit: As previously mentioned, Mountain's 1996 Management Audit cost \$48,400. The cost of a management audit is a non-recurring expenditure that should be amortized rather than expensed. In its previous decisions, the Commission has determined that the appropriate amortization period is 3 years. Therefore, Staff

¹³	Vehicle	\$ 14,373
	Liability	3,146
	Workers' Compensations	51,972
	Other	+ 9,211
	1995 Insurance	<u>\$ 78,702</u>

recommends that Mountain's test-period operating expenses be increased by \$16,133 to reflect amortizing the Management Audit cost over 3 years.

The majority of the 42 recommendations contained in the Management Audit do not impact Mountain's revenue requirement. However, the recommendations that do have a revenue requirement impact are listed in Exhibit G.

Normally, management audits include recommendations to reduce costs and ultimately benefit the ratepayers through reduced rates. However, in this instance the auditors strongly suggest that Mountain requires additional resources to operate properly. Even though the additional resources result in increased operating expenses, implementation of the audit recommendations should benefit Mountain's customers through improved service. Therefore, Staff recommends that Mountain's pro forma operations be adjusted to include the cost to implement the Management Audit recommendations noted in Exhibit G.

The recommendations identified as requiring a one-time expenditure total \$128,000. Since these costs are nonrecurring, they should be amortized rather than expensed. Staff has determined that a 3-year amortization period is appropriate, and therefore recommends that management audit expense be increased by \$42,667.

The annual benefit of \$15,000 for improving the meter reader productivity will not be fully realized in the first or second year of operation. Consistent with the recovery

period for non-recurring expenditures, Staff is of the opinion that the savings should be spread over 3 years, and therefore recommends that management audit expense be decreased by \$5,000.

The remainder of the recommendations are recurring costs or savings that have a net cost of \$113,200. During the field review, Mountain informed Staff that the additional maintenance employees were hired in 1996. Since this cost should be reflected in pro forma wages and salaries - employees, the expense related to the hiring of the 2 maintenance employees of \$35,000 has been removed from this adjustment. Therefore, Staff recommends that management audit expense of \$78,200 be included.

Based on the aforementioned recommended adjustments, operating expenses have been increased by \$132,000 to reflect amortization of the management audit cost and the expenses associated with the audit recommendations.

Staff's recommendations are based upon encouraging Mountain to implement the audit recommendations. At the upcoming hearing, Mountain's management should be fully prepared to update the Commission on its plans to implement these and other audit recommendations. As noted by the management auditors:

[F]ull rate relief and additional revenues should not, in our opinion, be provided without a commitment by Mountain to the management implementation plan contained in this Audit

and an assurance by Mountain that any rate increases be well utilized and spent in an ethical manner...¹⁴

Therefore, based on the quality of Mountain's testimony, the Commission should consider whether to exclude some or all of these costs in its Final Order.

Payroll Taxes: Mountain reported 1995 payroll taxes of \$50,739. Staff has determined that the pro forma salaries and wages - employee expense recommended herein, will result in a pro forma payroll tax expense of \$71,270,¹⁵ an increase of \$20,531 above the test-period amount. Therefore, Staff recommends that payroll tax expense be increased by \$20,531.

Operations Summary

Based on Staff's recommendations contained in this report, Mountain's operating statement would appear as set forth in Exhibit H to this report.

C. Revenue Requirement Determination

An approach frequently used by this Commission to determine revenue requirements for "non-profit" water utilities is debt service coverage ("DSC"). Staff recommends the use of this approach in determining Mountain's revenue requirement. Mountain's long-term debt consists of RD revenue bonds and Kentucky Infrastructure Authority ("KIA") loans. The annual debt service for Mountain's RD revenue bonds and

¹⁴ Management Audit Report, pages I-8 and I-9.

¹⁵ \$931,637 (Pro Forma Payroll) x 7.65% (FICA Rate) = \$71,270.

KIA loans is \$441,145 and \$288,940, respectively; when combined, they result in an annual debt service of \$730,085.

Mountain's pro forma operations, including the annual revenue of \$1,014,788 from the interim rate increase, reflect \$465,401 in net income available for debt service, which results in a DSC of 0.64x.¹⁶ Staff is of the opinion that a 1.2x DSC will provide a sufficient level of revenue for Mountain to meet all of its future operating expense and debt obligations. A DSC of 1.2x will result in a revenue requirement of \$4,538,981,¹⁷ for an increase in water revenues of \$380,533.¹⁸

D. Line Loss Surcharge

As previously mentioned, excessive line loss is a historical problem for Mountain. Because of the topography and geography of the area served by Mountain, it is difficult

¹⁶ $\$465,401 \text{ (Net Income)} \div \$730,085 \text{ (Debt Service)} = 0.64x.$

¹⁷

Debt Service	\$ 730,085
Add: 0.2x Coverage	+ 146,017
Recommended DSC	\$ 876,102
Add: Pro Forma Operating Expenses	+ 3,662,879
Recommended Revenue Requirement	<u>\$ 4,538,981</u>

¹⁸

Recommended Revenue Requirement	\$ 4,538,981
Less: Interest Income	- 5,459
Revenue Requirement - Operations	\$ 4,533,522
Less: Other Operating Revenues	- 137,481
Revenue Requirement - Water Sales	\$ 4,396,041
Less: Pro Forma Revenue - Water Sales	- 4,015,508
Recommended Revenue Increase	<u>\$ 380,533</u>

and expensive to address leaks in the system. Due to sustained operating losses over the years, Mountain has not had the financial resources to correct the line loss problem.

In the 1980s' the Commission established a water loss demonstration project designed to assist water utilities in reducing their unaccounted-for water loss. Through the demonstration project, the Commission allowed the utilities to collect a temporary monthly surcharge from their customers for the sole purpose of reducing line loss below the 15 percent allowable limit.

Given the severity of Mountain's line-loss, Staff is of the opinion that Mountain should be permitted a surcharge similar to the line loss demonstration project. Mountain should be permitted to assess its customers a surcharge that will produce \$277,225¹⁹ annually. The actual amount of the surcharge on a per customer basis is addressed in Section E, Rate Design.

Staff recommends that the line loss surcharge be in effect for a period not to exceed 3 years, unless otherwise extended by the Commission. If the surcharge is granted, the proceeds should be placed in a separate interest bearing account. Before expending any funds from this account, Mountain should be directed to submit to the Commission a

¹⁹	Line-Loss Adjustment	\$ 264,101
	Add: Purchased Power Adjustment	6,745
	Chemical Expense Adjustment	+ 6,379
	Annual Surcharge Collections	<u>\$ 277,225</u>

comprehensive study of its water system that would identify and prioritize Mountain's engineering and operational deficiencies. The study should also include a plan outlining the steps that will be taken to reduce Mountain's line loss to 15 percent.

The Management Audit recommended that Mountain, "Employ someone with engineering experience or seek outside assistance to review and approve engineering drawings and specifications," at an estimated cost of \$35,000. Mountain should use these funds to hire an engineering consultant to perform the comprehensive system analysis and to develop the line loss reduction plan. Staff recommends the Commission consider directing Mountain to utilize a "Request for Proposal" process to select the engineering firm.

Monthly transfers to the surcharge account should be equal to the proceeds from the monthly surcharge recommended herein and should be transferred from gross operating revenue prior to the revenue being dispersed for another purpose. Mountain should be directed to file with its Management Audit Progress Reports, a summary containing the following information: monthly surcharge billings and collections; monthly bank statements for the interest bearing surcharge account; a descriptive list of the amounts expended from the account to reduce its water loss; copies of the invoices to support the amounts expended from this account; and a narrative explanation of the steps taken to correct the line loss, including an analysis of each steps effect on line loss.

Mountain's failure to comply with the above funding requirements or to file the summaries should warrant the revocation of the surcharges and refunding of the monies already collected, plus interest thereon.

The surcharges constitute Contributions In Aid of Construction, and should be accounted for in the manner prescribed by the Uniform System of Accounts for Class A&B Water Districts and Associations. The monthly billing should be debited to customer accounts receivable and credited to the contributions account. When the amount is collected, special funds would be debited and customer accounts credited.

E. Rate Design

Billing Analysis: Commission Staff performed a detailed billing analysis to identify and analyze customer usage patterns, select water usage blocks and determine revenue from water sales. The billing analysis was prepared in accordance with guidelines set out in the American Water Works Association M-1 manual. Information used was obtained from Mountain's computer records, billing records, leak adjustment records and employees of Mountain. The billing analysis completed by Staff is a review of individual customers monthly usage and billing for each month of the test period.

Mountain applies its tariffed rates, which are set out by meter size, to its billing software. The billing software categorizes customers into different rate codes, each rate code distinguishes customers by different criteria such as meter size, multi-unit

dwellings, special contracts, and fire protection. Mountain uses twenty-two different rate codes in its customer billings.

Multi-unit dwellings have one meter but serve more than one household. These customers actually receive one bill per month, however that one bill includes the multiple number of minimum bills corresponding to the number of households and the customer is given credit for the multiple number of minimum usage gallons as well. The normalized billing analysis shows that Mountain rendered 104,070 bills however, when the multiple users are included the number of minimum bills increases to 110,458.

Staff's first step was to perform a billing analysis based on the actual test year billing information. During the process of gathering the information to perform the billing analysis we found that, when making adjustments to customers bills for misread meters, incorrectly estimated meter readings, and line leaks, Mountain does not adjust customer usage amounts in its computer program. Staff determined from Mountain's manual billing records that adjustments actually made to customer accounts totalled over 42,356,616 gallons. The significance of not entering the manually adjusted usage into the computer program is that reported utility statistics concerning usage and revenue derived from the computer program are inaccurate. For example, Mountain's 1995 Annual Report shows water sales of 655,029,000 while the billing analysis based on 1995 usage shows 620,882,831 gallons sold, a difference of 34,146,169 gallons. Staff

recommends that when adjustments are made to a customer's bill, a corresponding adjustment be made in the computer program to reflect the adjusted usage amount.

Mountain was directed to provide customer usage information for the test period in a Lotus 123 spreadsheet format on 3.5 computer disk. The utility was unable to provide the information in the manner initially requested so a hard copy was generated consisting of several thousand pages of billing data. The company that provides Mountain with its software program provided, at some cost to Mountain, a breakdown of usage data as the Commission had requested. Review of that information revealed that some customers had been omitted entirely and customers who were not on the system the entire year had been given 0 usage for the months they were not on the system.²⁰ Staff corrected the usage data to reflect the customers that were omitted and deleted all 0 usage when a minimum bill was not sent. Staff then tracked each dollar adjustment that had been made by Mountain and corrected the data to reduce actual usage by 42,356,616 gallons. Of this amount, 10,417,940 gallons of the adjustments were for line leaks that are billed at \$1.64 per one thousand gallons. The adjusted billing analysis produced test year actual revenue from water sales in the amount of \$2,968,225.

²⁰Assigning 0 usage for customers who were not on the system an entire year may not yield a reliable, normalized, billing analysis.

Staff then prepared a billing analysis based on adjustments to test year usage to produce a normalized analysis. Since Mountain has added additional customers that were formerly served by Potter Water, estimated usage of 4,500 gallons per month was added to the billing analysis to reflect their usage. The emergency rates approved for Mountain have been incorporated into the normalized billing analysis.

Mountain has been charging rates for fire protection and wholesale service that have not been approved by the Commission. Therefore, adjustments were made to the billing analysis to remove amounts collected that are not included in Mountain's tariffed rates. Thus, the normalized billing analysis produces revenue from water sales in the amount of \$4,015,507 and is set out in Exhibit B.

Unauthorized Rates: Mountain's tariff contains a rate of \$12.50 for fire protection for customers served by a 4 inch connection. In reviewing the billing records it was determined that Mountain was charging 6 customers a rate of \$12, one customer a rate of \$13.50 and one customer a rate of \$3.20 per 1,000 gallons. In its response of March 4, 1997 to an information request Mountain stated that these customers were erroneously billed. Staff recommends that Mountain refund all overcollections and bill for all undercollections during the past two years as set out in KRS 278.225.

Mountain's current tariffed wholesale rate is \$1.87 per one thousand gallons but there are presently no customers paying this rate. Martin County Water District Number

2, ("Martin County") purchases water from Mountain at a rate of \$1.91 per one thousand gallons. The rate for Martin County was established by a special contract executed in 1992, however the contract was not filed with nor approved by the Commission. In the course of this proceeding Mountain furnished the Commission with a copy of the contract. Mountain should be advised that under Kentucky law, all rates charged by Mountain must be approved by the Commission prior to their implementation.

F. Cost of Service Study

Once revenue requirements have been determined a cost of service study should be performed to allocate costs among customers. The purpose of a cost of service study is to design rates that reflect the costs of providing service for each customer class based on both quantity and characteristics of use. The AWWA Manual M-1 states that since the needs for total volume of supply and peak rates of use vary among customers, the costs to the utility of providing service also vary among customers. The attached study, Exhibits I through K, address the costs associated with providing service to Martin County, the leak adjustment rate, line loss surcharge, and the cost of providing service to Mountain's retail customers.

Leak Adjustment Rate: Mountain received revenue of \$17,085 from leak adjustments during the test year. Mountain's current leak adjustment rate is \$1.64 and is based on a wholesale cost of water of \$1.31 per 1,000 gallons plus 25 percent. Staff

has determined that the leak adjustment rate should be \$3.28 per 1,000 gallons. Exhibit I, contains a breakdown of the allocation of expenses which have been included in the calculation of the leak adjustment rate. The expenses include purchased water, purchased power, chemicals, water treatment salaries, and depreciation. An additional 10 percent has been added to the rate to cover the administrative and general costs of adjusting both usage and revenue amounts due to the utility based on the leak adjustment. The increased leak adjustment rate will result in revenue from leak adjustments in the amount of \$34,171.

Line Loss Surcharge: The Management Audit Report recommends that Mountain implement a program to reduce its line loss. It has been determined that Mountain requires \$277,225 annually for a period of three years to implement such a program. This amount includes an adjustment for purchased power of \$6,745 and an adjustment for chemicals of \$6,379. The surcharge can either be based on the number of bills rendered or gallons sold. Based on the 110,458 bills each customer would pay a flat monthly fee of \$2.51. Mountain sold 619,468,832 gallons based on normalized test year sales which would result in a surcharge of .45 cents per 1,000 gallons. The wholesale rate recommended in this report allocated a proper percentage of line loss to Martin County. Staff recommends the surcharge be based on the number of gallons sold,

including all sales which are subsequently adjusted for line loss. However, Staff recommends the line loss surcharge not be assessed to Martin County.

Wholesale Rate: Mountain has a contract with Martin County to sell water at a rate of \$1.91 per 1,000 gallons. An analysis of expenses, set out in Exhibit J was prepared to determine if the current wholesale rate covered the cost associated with providing service to this particular customer. Sheet 1 sets out the total water produced, water sold, line loss, plant use and sales to Martin County.

Sheet 2 sets out the wholesale rate allocation factors. The water production multiplier shows that due to plant use and line loss, Mountain must produce or purchase 1.5158 gallons in order to sell one gallon. The amount of line loss that is allocated to a wholesale customer is generally based on the inch-miles of the total system the customer uses which assumes that the leak potential is directly proportional to length and diameter of pipe. Mountain has 2,597.84 inch-miles of line of which 42.084 inch miles are jointly used by Mountain and Martin County. Staff determined that a line loss of 15 percent should be allocated to Martin County. This amount, plus amounts for plant use, results in the joint sharing of line loss and plant use factor.

The water production multiplier takes into consideration the amount of Mountain's system that Martin County uses and determines that Mountain must produce or purchase 1.0398 gallons in order to sell Martin County one gallon. The production allocation factor

is used to allocate source of supply, treatment and pumping expense. The pipeline transmission factor is used to allocate transmission and distribution expense.

Sheet 3 shows the total operating expenses for Mountain which have been included in the allocation of costs to Martin County based on the allocation factors determined on Sheet 2. The rate recommended for Martin County is \$1.80.

Retail Rates: Once the operating revenue requirement has been established for the retail customers the costs were allocated to the rate increments. The commodity-demand methodology used in this study was developed by the AWWA and is set out in the AWWA Manual M-1 at Chapter 5. This method of designing rates allocates costs into functional categories which allows the utility to recover the cost of meeting average water use as well as peak demand requirements.

Exhibit K, Sheet 1, shows the allocation of plant value to commodity, demand and customer cost functions. The percentage of plant value allocated to each of these components was used to allocate debt service among the usage increments. Sheet 2 shows the allocation of operation and maintenance expense into the cost functions. Cost allocations to the commodity functions include costs that vary directly with the amount of water sold. These costs include purchased water, purchased power and chemicals. Costs allocated to the demand component include labor, transmission and distribution, materials and supplies. Customer costs include billing and collecting, meter reading and

labor associated with these functions. Administrative and general expenses are based on the subtotal allocation of demand and customer expenses, and were allocated to these functions on a percentage basis.

The total costs for each function are shown on Sheet 3. Operation and maintenance expenses were carried forward from Sheet 2 and debt service was allocated based on the percentages of plant value shown on Sheet 1. All other operating income was deducted from the required amount to determine the amount of revenue needed from water sales.

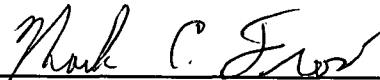
The next step in preparing the cost of service study was to review water usage patterns to determine the rate increments. Mountain changed its rate design when applying for interim rates from a minimum usage allowance of 2,000 gallons to a minimum usage allowance of 1,000 gallons. A review of usage patterns shows that only approximately 14 percent of Mountain's residential customers use between 0 and 1,000 gallons per month and approximately 30 percent of Mountain's residential customers use between 0 and 2,000 gallons per month. The minimum usage level should cover as many residential customers as possible without placing an undue burden on low level users. Therefore, Staff recommends that the minimum usage level be changed to 2,000 gallons.

Mountain has several customers who use a large quantity of water such as Utility Coal Company's average usage of 117,500 per month and a church-school who averages usage of 417,687 per month. These customers generally have a lower peaking factor than residential customers, which indicates a more uniform usage of water at higher use levels. In order to recognize the difference in demands placed on Mountain's system, Staff recommends that Mountain implement a three step rate design consisting of a minimum usage allowance of 2,000 gallons, a usage increment ranging from 2,001 to 10,000 gallons and an over 10,000 gallons increment.

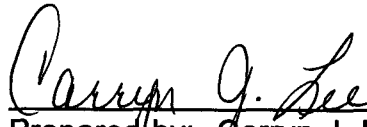
Due to the change in rate design for the interim rates, customers who used 1,000 gallons or less received a decrease of 8.77 percent while customers who used up to 2,000 gallons received an increase of 25.61 percent. The rates recommended by Staff result in an increase of 37.54 percent for customers who use 1,000 gallons or less and a decrease of 0.11 percent for customers who use up to 2,000 gallons.

The calculation of rates based on these usage increments is set out on Sheet 4. The recommended rates and verification that they will produce the required revenue are shown on Sheet 5.

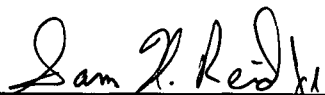
G. Signatures



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EXHIBIT A
TO THE STAFF REPORT IN CASE NO. 96-126

MOUNTAIN WATER DISTRICT
BILLING ANALYSIS SUMMARY
TEST YEAR ACTUAL

<u>RATE CODE</u>	<u>BILLS</u>	<u>GALLONS</u>	<u>REVENUE</u>
01	48,837	230,525,179	\$1,160,493.41
01	51,474	245,798,424	1,230,803.06
02	607	19,349,874	76,876.24
03	588	58,145,434	223,554.20
04	24	4,431,700	14,817.15
05	60	15,791,743	56,687.47
06	24	3,136,490	15,240.00
37	1,360	11,561,407	59,196.49
38	140	1,613,220	8,585.90
39	85	1,868,474	8,675.33
40	36	520,680	3,432.10
41	12	111,310	1,030.18
42	12	262,174	1,572.61
43	24	512,965	3,297.14
47	12	575,000	2,966.22
50 FLAT RATE (\$1.91/1,000)	12	3,812,041	7,281.00
51	12	516,270	3,134.87
55 (FIRE PROTECTION)	7	31,958	113.57
60	12	676,748	7,895.67
63	12	1,972,800	11,116.80
70	12	4,257,000	21,467.25
80	12	4,994,000	29,777.65
99 (FIRE PROTECTION)	156	0	3,126.00
<hr/>			
SUB TOTAL	103,530	610,464,891	\$2,951,140.30
LINE LEAK ADJUSTMENTS(@\$1.64/1000 gallons)		10,417,940	\$17,085.42
<hr/>			
TOTAL	103,530	620,882,831	\$2,968,225.72

EXHIBIT B
TO THE STAFF REPORT IN CASE NO. 96-126

MOUNTAIN WATER DISTRICT
BILLING ANALYSIS SUMMARY
NORMALIZED TEST YEAR

<u>RATE CODE</u>	<u>BILLS</u>	<u>GALLONS</u>	<u>REVENUE</u>	
01	49,377	232,955,179	\$1,560,594.88	
01	51,474	245,798,424	1,641,159.93	
02	607	19,349,874	112,962.38	
03	588	58,145,434	332,564.36	
04	24	4,431,700	22,024.88	
05	60	15,791,743	82,494.08	
06	24	3,136,490	22,700.10	
37	1,360	11,561,407	79,049.38	
38	140	1,613,220	11,373.57	
39	85	1,868,474	11,909.52	
40	36	520,680	4,257.90	
41	12	111,310	1,138.47	
42	12	262,174	1,983.67	
43	24	512,965	4,096.31	
47	12	575,000	3,983.90	
50	FLAT RATE (\$1.91/1,000)	12	3,812,041	7,281.00
51		12	516,270	4,084.92
55	(FIRE PROTECTION)	7	31,958	87.50
60		12	676,748	8,729.91
63		12	1,972,800	14,721.12
70		12	4,257,000	29,024.10
80		12	4,994,000	39,050.60
99	(FIRE PROTECTION)	156	0	3,150.00
<hr/>				
SUB TOTAL	104,070	612,894,891	\$3,998,422.49	
<hr/>				
LINE LEAK ADJUSTMENTS(@\$1.64/1000 gallons)		10,417,940	\$17,085.42	
<hr/>				
TOTAL	104,070	623,312,831	\$4,015,507.91	

EXHIBIT C
TO THE STAFF REPORT IN CASE NO. 96-126
CALCULATION OF PRO FORMA SALARIES & WAGES - EMPLOYEES

Position	1996 Hourly Wages	1996 Hours Worked		Staff's Pro Forma Salaries & Wages - Employees		
		Regular	Overtime	Regular	Overtime	Totals
Accts Payable/Asst Mgr	\$12.44	2,080	0.00	\$25,875	\$0	\$25,875
Office Manager	\$15.20	2,080	0.00	31,616	0	31,616
Payroll Clerk/Personnel	\$7.08	2,080	21.50	14,726	228	14,954
Superintendent	\$23.30	2,080	0.00	48,464	0	48,464
Billing Supervisor	\$12.31	2,080	47.00	25,605	868	26,473
Cashier	\$10.01	2,080	11.75	20,821	176	20,997
Customer Service Rep II	\$10.41	2,080	30.50	21,653	476	22,129
Delinquent Accounts	\$10.61	2,080	9.75	22,069	155	22,224
Meter Reader	\$6.81	2,080	21.75	14,165	222	14,387
Meter Reader	\$7.51	2,080	76.50	15,621	862	16,483
Meter Reader	\$7.11	2,080	116.25	14,789	1,240	16,029
Meter Reader	\$8.01	2,080	84.50	16,661	1,016	17,677
Meter Reader	\$7.11	2,080	87.25	14,789	931	15,720
Meter Testing/Invent	\$8.15	2,080	66.50	16,952	813	17,765
Serviceman	\$9.02	2,080	96.00	18,762	1,299	20,061
Area Manager	\$14.91	2,080	1.00	31,013	22	31,035
Backhoe Operator	\$8.51	2,080	400.50	17,701	5,114	22,815
Backhoe Operator	\$8.51	2,080	430.75	17,701	5,501	23,202
Backhoe Operator	\$9.01	2,080	323.00	18,741	4,367	23,108
Backhoe Operator	\$8.01	2,080	491.50	16,661	5,908	22,569
Backhoe Operator	\$7.51	2,080	561.00	15,621	6,322	21,943
Electrician/Mechanic	\$11.12	2,080	164.50	23,130	2,744	25,874
Field Maintenance	\$6.36	2,080	220.00	13,229	2,099	15,328
Field Maintenance	\$6.36	2,080	220.75	13,229	2,106	15,335
Field Maintenance	\$7.46	2,080	124.00	15,517	1,388	16,905
Field Maintenance	\$8.73	2,080	0.00	18,158	0	18,158
Field Maintenance	\$6.42	2,080	291.50	13,354	2,807	16,161
Field Maintenance	\$9.21	2,080	726.25	19,157	10,037	29,194
Field Maintenance	\$6.36	2,080	202.50	13,229	1,932	15,161
Field Maintenance	\$7.01	2,080	482.00	14,581	5,071	19,652
Field Maintenance	\$7.27	2,080	372.00	15,122	4,059	19,181
Field Maintenance	\$6.51	2,080	220.25	13,541	2,152	15,693
Field Maintenance	\$11.48	2,080	704.25	23,878	12,127	36,005
Field Maintenance	\$7.27	2,080	238.50	15,122	2,602	17,724
Mechanic	\$10.31	2,080	795.75	21,445	12,310	33,755
Operating Manager	\$17.78	2,080	1.00	36,982	27	37,009
Section Foreman	\$10.71	2,080	461.00	22,277	7,408	29,685
Section Foreman	\$10.51	2,080	833.75	21,861	13,148	35,009
Plant Operator - Class II	\$11.14	2,080	199.75	23,171	3,338	26,509
Plant Operator - Class III	\$9.51	2,080	223.50	19,781	3,189	22,970
Plant Operator - Class III	\$10.87	2,080	0.00	22,610	0	22,610
Plant Operator - Class III	\$11.01	2,080	254.75	22,901	4,208	27,109
Total Pro Forma Payroll				\$842,281	\$128,272	\$970,553
Less: Capitalized Payroll from Page 2						(38,916)
Pro Forma Salaries & Wages - Employees Expense						\$931,637

Current Hourly Rates for Field Maintenance Employees

Field Maint. Employee No.	1	\$6.36 Per Hour
Field Maint. Employee No.	2	\$6.36 Per Hour
Field Maint. Employee No.	3	\$7.46 Per Hour
Field Maint. Employee No.	4	\$8.73 Per Hour
Field Maint. Employee No.	5	\$6.42 Per Hour
Field Maint. Employee No.	6	\$9.21 Per Hour
Field Maint. Employee No.	7	\$6.36 Per Hour
Field Maint. Employee No.	8	\$7.01 Per Hour
Field Maint. Employee No.	9	\$7.27 Per Hour
Field Maint. Employee No.	10	\$6.51 Per Hour
Field Maint. Employee No.	11	\$11.48 Per Hour

Average for Field Maintenance Employee	\$7.56 Per Hour
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Current Hourly Rates for Backhoe Operators

Backhoe Op. Employee No.	1	\$8.51 Per Hour
Backhoe Op. Employee No.	2	\$8.51 Per Hour
Backhoe Op. Employee No.	3	\$9.01 Per Hour
Backhoe Op. Employee No.	4	\$8.01 Per Hour
Backhoe Op. Employee No.	5	\$7.51 Per Hour

Average for Backhoe Operator	\$8.31 Per Hour
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Avg Rate - Field Maintenance Emp	\$7.56
Multiplied by: No of Field Maint Emp for Each Tap-on	2
Subtotal	\$15.12
Add: Avg Rate - Backhoe Operator	8.31
Pro Forma Hourly Capitalized Labor Cost	\$23.43
Multiplied by: Average Hours to Complete Tap-on	4
Approximate Pro Forma Tap-on Labor Cost	\$94
Multiplied by: Number of 1995 Tap-ons	414
Pro Forma Capitalized Labor	\$38,916

EXHIBIT D
TO THE STAFF REPORT IN CASE NO. 96-126
CALCULATION OF PRO FORMA EMPLOYEE PENSION & BENEFIT EXPENSE

Single Health Insurance Premium			\$92.15
Add: Life & Disability Premium			7.20
<hr/>			
Emp. Insurance Premium - Monthly			\$99.35
Multiplied by: 12 Months			12
<hr/>			
Emp. Insurance Premium - Annual			\$1,192
Multiplied by: Number of Employees			42
<hr/>			
Add: Emp. Retirement Cont.	931,637 (Pro Forma Sal) x	8.82% (Contrib. Rate) =	\$50,064
			82,171
<hr/>			
Subtotal			\$132,235
Less: Capitalized Emp. Insurance			(2,265)
<hr/>			
Pro Forma Employee Pensions & Benefits			\$129,970
<hr/>			

Current Insurance Premiums Field Maintenance Employees

	Annual
Individual Employee Insurance Premium	\$1,192
Multiplied by: Current Field Maintenance Emp.'s	12
Total Premiums - Field Maint Employees	\$14,304

Current Insurance Premiums Backhoe Operators

	Annual
Individual Employee Insurance Premium	\$1,192
Multiplied by: Current Backhoe Operators	5
Total Premiums - Backhoe Operators	\$5,960
Total Preimums	\$20,264

	Amount
Pro Forma Capitalized Labor	\$38,916
Divided by: Gross Backhoe & Field Maint Salaries	\$348,134
% of Capitalized Labor	11.178%
Multiplied by: Total Premiums	20264
Pro Forma Capitalized Employee Insurance	\$2,265

EXHIBIT E
TO THE STAFF REPORT IN CASE NO. 96-126
CALCULATION OF PRO FORMA PURCHASED WATER EXPENSE

Normalized Water Sales - Gallons	623,312,831
Divided by: 85%	85%

Water Purchases/Production Limited to 15% Line Loss	733,309,213
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Month Purchased or Produced	Purchased Water				Total System Water
	City of Williamson	City of Pikeville	Sandy Valley Water Dist	Water Produced	
JAN 1995	26,402,000	31,679,000	1,852,000	15,706,000	75,639,000
FEB 1995	27,827,000	31,340,000	1,592,000	14,612,000	75,371,000
MAR 1995	25,780,000	31,761,000	1,829,000	15,504,000	74,874,000
APR 1995	29,828,000	26,752,000	1,663,000	14,612,000	72,855,000
MAY 1995	25,163,000	31,130,000	1,684,000	15,249,000	73,226,000
JUN 1995	29,291,000	30,820,000	1,724,000	15,402,000	77,237,000
JUL 1995	27,700,000	28,162,000	2,219,000	16,881,000	74,962,000
AUG 1995	30,599,000	36,027,000	1,841,000	18,156,000	86,623,000
SEP 1995	31,981,000	33,512,000	1,316,000	17,952,000	84,761,000
OCT 1995	27,843,000	33,932,000	1,473,000	18,615,000	81,863,000
NOV 1995	29,919,000	34,866,000	1,359,000	17,340,000	83,484,000
DEC 1995	27,078,000	37,508,000	1,370,000	17,876,000	83,832,000
Totals	339,411,000	387,489,000	19,922,000	197,905,000	944,727,000

% of Total Water Purch/Prod	35.927%	41.016%	2.109%	20.948%	100.000%
Multiplied by: Adjusted Gallons	733,309,213	733,309,213	733,309,213	733,309,213	733,309,213
<hr/>					
Allocated Adj Water - Gallons	263,456,001	300,774,107	15,465,491	153,613,614	733,309,213
Multiplied by: Rates per Gallon	0.00187	0.00131	0.00190	N/A	N/A
<hr/>					
Adjusted Purchased Water	\$492,663	\$394,014	\$29,384	N/A	N/A

City of Williamson	\$492,663
City of Pikeville	394,014
Sandy Valley Water District	29,384
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Pro Forma Purchased Water Expense	\$916,061

EXHIBIT F
TO THE STAFF REPORT IN CASE NO. 96-126
CALCULATION OF PRO FORMA INSURANCE EXPENSE

	Pro Forma Salaries	Workers' Compensation Rates	Modified Premium
Waterworks - Expensed	\$718,905	\$10.42	\$74,910
Professional	\$48,464	\$1.56	756
Clerical/Office	\$164,268	\$0.48	788
Total of All Modified Classes			\$76,454
Less: All Discounts		13%	9,939
Subtotal			\$66,515
Add: Kentucky Premium Tax		9%	5,986
Pro Forma Workers Comp Premium			\$72,501
Add: Vehicle Insurance for 1996			21,652
Liability Insurance for 1996			4,872
Errors/ Omissions Insurance for 1996			2,706
Property Insurance for 1996			5,954
Fidelity & Deposit Bonds Insurance for 1996			1,579
Pro Forma Insurance Expense			\$109,264

EXHIBIT G
TO THE STAFF REPORT IN CASE NO. 96-126
LIST OF MANAGEMENT AUDIT RECOMMENDATIONS

Description	Priority	Management Audit Reference	Cost Type	Estimated Costs
Develop Financial Plan	B	Chapter II; II-11	Nonrecurring	\$20,000
Develop a Water Quality Plan	A	Chapter III; 1	Nonrecurring	\$30,000
Improve Use of Workorder Information.	A	Chapter III; 8	Nonrecurring	\$1,000
Provide Statistics on Meter Failure Rates	A	Chapter III; 10	Nonrecurring	\$1,000
Develop a Water Supply Plan	A	Chapter III; 11 & 15	Nonrecurring	\$75,000
Expand the Contractor Bidding List	C	Chapter III; 14	Nonrecurring	\$1,000
Improve the Productivity of the Meter Readers	A	Chapter V; V-1	Recurring	(\$15,000)
Hire an additional Office Employee to Assist Superintendent	A	Chapter II; II-7 & II-8	Recurring	\$17,500
Develop a Preventive Maintenance Program	A	Chapter III; 4	Recurring	\$5,000
Hire 2 Additional Maintenance Employees	A	Chapter III; 4	Recurring	\$35,000
Implement a Leak History Tracking System	A	Chapter III; 9	Recurring	\$3,500
Employ the Services of an Engineer Consultant	A	Chapter III; 12	Recurring	\$35,000
Hire an Additional Meter Reader	A	Chapter V; V-2	Recurring	\$17,500
Increase the Number of Telephone Lines	B	Chapter V; V-5	Recurring	\$1,200
Hire an Additional Customer Service Employee	B	Chapter V; V-5	Recurring	\$17,500
Perform a Customer Survey	A	Chapter V; V-6	Recurring	\$500
Begin a Utility Newsletter	A	Chapter V; V-7	Recurring	\$1,000
Establish a Satellite Reporting Office	A	Chapter III; 5	Recurring	(\$20,000)
Discontinue the Collection & Delivering of Water Samples by Supervisors	C	Chapter III; 6	Recurring	(\$500)
Total Implementation Cost				\$226,200

EXHIBIT H
TO THE STAFF REPORT IN CASE NO. 96-126
STAFF'S RECOMMENDED PRO FORMA OPERATIONS

	Actual Operations	Pro Forma Adjustments	Pro Forma Operations
Operating Revenues:			
Revenue from Water Sales	\$3,000,720	\$1,014,788	\$4,015,508
Other Operating Revenue:			
Forfeited Discounts	\$38,937	\$0	\$38,937
Miscellaneous Service	53,052	0	53,052
Other Water Revenues	45,492	0	45,492
Total Other Operating Revenue	\$137,481	\$0	\$137,481
Total Operating Revenues	\$3,138,201	\$1,014,788	\$4,152,989
Operating Expenses:			
Water Utility Expenses:			
Salaries & Wages - Employees	\$645,364	\$286,273	\$931,637
Salaries & Wages - Commissioners	79,073	(61,073)	18,000
Employee Pensions & Benefits	161,932	(31,962)	129,970
Purchased Water	986,180	(70,119)	916,061
Purchased Power	175,607	(6,745)	168,862
Chemicals	30,957	(6,379)	24,578
Materials & Supplies	135,693	(34,898)	100,795
Contractual Services - Accounting	9,305	0	9,305
Contractual Services - Legal	7,430	(7,430)	0
Contractual Services - Other	70	0	70
Equipment Rental	1,200	0	1,200
Transportation	72,099	0	72,099
Insurance	78,702	30,562	109,264
Advertising	1,952	0	1,952
Bad Debt Expense	32,443	0	32,443
Miscellaneous	40,508	0	40,508
Management Audit	0	132,000	132,000
	\$2,458,515	\$230,229	\$2,688,744
Depreciation Expense	888,536	1,584	890,120
Amortization Expense	0	12,745	12,745
Taxes Other Than Income Tax	50,739	20,531	71,270
Total Operating Expenses	\$3,397,790	\$265,089	\$3,662,879
Net Operating Income	(\$259,589)	\$749,699	\$490,110
Other Income:			
Interest Income	5,459	0	5,459
Income Available for Debt Service	(\$254,130)	\$749,699	\$495,569

EXHIBIT I
TO THE STAFF REPORT IN CASE NO. 96-126

CALCULATION OF LEAK ADJUSTMENT RATE

GALLONS SOLD TO RETAIL CUSTOMERS 619,468,832

<u>EXPENSE</u>		<u>COST PER</u> <u>1,000 GALLON</u>	
Salaries:			
	Treatment	\$104,412	\$0.17
	Transmission and Distribution	529,993	0.86
Purchased Water		916,061	1.48
Purchased Power			
	Treatment	19,892	0.03
	Transmission and Distribution	143,523	0.23
Chemicals		24,578	0.04
Depreciation			
	Treatment	20,927	0.03
	Supply	87,106	0.14
Subtotal		\$1,846,492	\$2.98
Plus 10% Administrative and General		184,649	0.30
Total		\$2,031,141	\$3.28

LEAK ADJUSTMENT RATE **\$3.28 per 1,000 gallons**

EXHIBIT J		
TO THE STAFF REPORT IN CASE NO. 96-126		
TOTAL WATER PRODUCED AND SOLD		
	Gallons	Percent
Plant Use	33,905,000	
Line Loss	287,541,127	
Sales to Retail (1)	619,468,832	
Sales to Martin Co.	3,812,041	
Total Water Produced and Purchased	944,727,000	
Total Sold	623,280,873	
Water Loss Percentage	$287,541,127/944,727,000=$	30.44%
Plant Use Percentage	$33,905,000/944,727,000=$	3.59%
Total System Loss and Plant Use		34.03%
(1) Includes regular sales of 609,050,892 and leak adjusted sales of 10,417,940		

WHOLESALE ALLOCATION FACTORS

Line Loss Percentage	30.44%
Plant Use	3.59%
Total Line Loss and Plant Use	34.03%
Mountain Water Production Multiplier	
$1 / 1-.3403$	1.5158
Martin Inch Mile Ratio	
$42.048 / 2,597.84$	0.0162
Martin County Share of Line Loss	
$0.0162 \times .15$	0.0024
Joint Share of Line Loss and Plant Use	
$.0024 + .0359$	0.0354
Production Multiplier	
$1 / 1-0.0383$	1.0398
Production Allocation Factor	
$(3,812,041 / 623,280,873) \times (1.0398 / 1.5168)$	0.0042
Pipeline Transmission Factor	
$(3,812,041 / 623,280,873) * .0162$	0.0001

ALLOCATION OF OPERATION AND MAINTENANCE EXPENSE

	Total	Allocation Factor	Allocated to Martin Co.	Allocated to Mountain
Salaries				
Treatment	\$104,412	0.0042	\$439	\$103,973
Transmission and Distribution	529,993	0.0001	53	529,940
Pensions and Benefits				
Treatment	14,105	0.0042	59	14,046
Transmission and Distribution	72,595	0.0001	7	72,588
Purchased Water	916,061	0.0042	3,847	912,214
Purchased Power				
Treatment	19,970	0.0042	84	19,886
Transmission and Distribution	143,445	0.0001	14	143,431
Chemicals	24,578	0.0042	103	24,475
Materials and Supplies				
Source of Supply	4,177	0.0042	18	4,159
Treatment	4,302	0.0042	18	4,284
Contractual Services				
Source of Supply	1,861	0.0042	8	1,853
Treatment	1,861	0.0042	8	1,853
Equipment Rental				
Treatment	240	0.0042	1	239
Transportation				
Treatment	177	0.0042	1	176
Insurance - Treatment	13,322	0.0042	56	13,266
Insurance - Source of Supply	1,440	0.0042	6	1,434
Miscellaneous				
Source of Supply	941	0.0042	4	937
Treatment	2,044	0.0042	9	2,035
Management Audit				
Supply	35,586	0.0042	149	35,437
Treatment	35,586	0.0042	149	35,437
Taxes - Treatment	7,988	0.0042	34	7,954
Depreciation				
Treatment	20,927	0.0162	339	20,588
Supply	87,106	0.0162	1,411	85,695
Amortization - Source of Supply	1,653	0.0162	27	1,626
Total Operation and Maintenance	\$1,934,684		\$6,844	\$1,927,840
Rate to Martin County	\$6,844 / 3,812,041 gallons =		\$1.80	

	EXHIBIT K			
TO THE STAFF REPORT IN CASE NO.			96-126	
ALLOCATION OF PLANT VALUE				
	Total	Commodity	Demand	Customer
Land and Land Rights	\$344,608	\$0	\$344,608	
Structures and Improvements	693,524		693,524	
Collecting & Impounding Reservoirs	59,137		59,137	
Pumping Equipment	2,351,095		2,351,095	
Water Treatment Equipment	152,214		152,214	
Dist. Reservoirs and Standpipes	5,136,578		5,136,578	
Transmission & Dist. Mains	21,506,822		21,506,822	
Services	2,261,274			2,261,274
Meter & Meter Installations	2,222,312			2,222,312
Hydrants	580,483			580,483
Subtotal	\$35,308,047	\$0	\$30,243,978	\$5,064,069
Percentage of subtotal	100.00%		85.66%	14.34%
Office Furniture & Equipment (1)	42,472		36,380	6,092
Transportation Equipment	229,132		196,269	32,863
Tools, Shop & Garage Equipment	11,526		9,873	1,653
Laboratory Equipment	8,545		7,319	1,226
Power Operated Equipment	250,059		214,194	35,865
Communication Equipment	56,797		48,651	8,146
Total	\$35,906,578	\$0	\$30,756,664	\$5,149,914
Percent	100.00%		85.66%	14.34%
(1) General Plant allocated based on overall weighted allocation of all other plant.				
Source 1995 Annual Report at 28				

ALLOCATION OF OPERATION AND MAINTENANCE EXPENSE

	Total	Commodity	Demand	Customer
Salaries and Wages - Emp.				
Treatment	\$103,973		\$103,973	
Transmission and Distribution	529,940		529,940	
Salaries and Wages - Comm.				
Treatment	1,936		1,936	
Transmission and Distribution	10,551		10,551	
Employee Pension and Benefits				
Treatment	14,046		14,046	
Transmission and Distribution	72,588		72,588	
Purchased Water	912,214	912,214		
Purchased Power				
Treatment	19,886	19,886		
Transmission and Distribution	143,431	143,431		
Chemicals	24,475	24,475		
Materials and Supplies				
Source of Supply	4,159		4,159	
Treatment	4,284		4,284	
Transmission and Distribution	54,001		54,001	
Contractual Services				
Source of Supply	1,853		1,853	
Treatment	1,853		1,853	
Transmission and Distribution	1,931		1,931	
Equipment Rental				
Treatment	239		239	
Transmission and Distribution	480		480	
Transportation				
Treatment	176		176	
Transmission and Distribution	51,227		51,227	
Insurance				
Source of Supply	1,434		1,434	
Treatment	13,266		13,266	
Transmission and Distribution	74,143		74,143	
Miscellaneous				
Source of Supply	937		937	
Treatment	2,035		2,035	
Transmission and Distribution	12,848		12,848	
Management Audit				
Source of Supply	35,437		35,437	
Treatment	35,437		35,437	
Transmission and Distribution	1,386		1,386	
Payroll Taxes				
Treatment	7,954		7,954	
Transmission and Distribution	40,544		40,544	
Depreciation				
Source of Supply	85,695		85,695	
Treatment	20,588		20,588	
Transmission and Distribution	756,847		756,847	
Amortization				
Source of Supply	1,626		1,626	
Transmission and Distribution	11,092		11,092	
Customer Accounts	438,257			438,257
Subtotal	\$3,492,769	\$1,100,006	\$1,954,506	\$438,257
Subtotal - Less Commodity	2,392,763		1,954,506	438,257
Percentage			81.68%	18.32%
Administrative and General (1)	163,478		133,535	29,943
Total Operational and Maintenance	\$3,656,247	\$1,100,006	\$2,088,041	\$468,200
(1) Administrative and General allocated based on allocation of other expenses less commodity				

RETAIL COST OF SERVICE

	Total	Commodity	Demand	Customer
Allocated Plant Value	\$35,906,578		\$30,756,664	\$5,149,913
Percentage	100.00%		85.66%	14.34%
Operation and Maintenance	\$3,656,247	\$1,100,006	\$2,088,041	\$468,200
Debt Service	876,102	0	750,447	125,655
Total Retail Costs of Service	\$4,532,349	\$1,100,006	\$2,838,488	\$593,855
Less				
Fire Protection Revenue	\$3,239		\$1,620	\$1,620
Interest Income	5,459			5,459
Forfeited Discounts	38,937			38,937
Miscellaneous Service	18,446		9,223	9,223
Reconnection Fees	34,606			34,606
Other Water Revenue	45,492		22,746	22,746
Leak Adjustments	34,171	18,544	12,502	3,125
General Water Service	\$4,351,999	\$1,081,462	\$2,792,398	\$478,139

CALCULATION OF RATES

	TOTAL	FIRST	NEXT	OVER
		2,000	8,000	10,000
Actual Water Sales	609,050,892	194,421,111	280,163,235	134,466,546
Percentage	100.00%	31.92%	46.00%	22.08%
Weighted Sales	824,907,534	340,236,944	350,204,044	134,466,546
Percentage	100.00%	41.25%	42.45%	16.30%
Commodity	\$1,081,642	\$345,282	\$497,555	\$238,805
Demand	2,792,398	1,151,738	1,185,477	455,183
Total	\$3,874,040	\$1,497,019	\$1,683,032	\$693,989
Water Rates		\$13.55	\$6.01	\$5.16
Customer Charge	\$478,139	\$4.33		
Total Rates		\$17.88	\$6.01	\$5.16
110,458 bills used to calculate the customer charge.				

RECOMMENDED WATER RATES

METER SIZE	BLOCK USAGE	MONTHLY RATES
<u>5/8 X 3/4 INCH</u>		
FIRST	2,000	\$17.88 Minimum Bill
NEXT	8,000	5.95 per 1,000 gallons
OVER	10,000	5.16 per 1,000 gallons
<u>1 INCH</u>		
FIRST	5,000	\$35.73 Minimum Bill
NEXT	5,000	5.95 per 1,000 gallons
OVER	10,000	5.16 per 1,000 gallons
<u>2 INCH</u>		
FIRST	20,000	\$117.08 Minimum Bill
OVER	20,000	5.16 per 1,000 gallons
<u>3 INCH</u>		
FIRST	30,000	\$168.68 Minimum Bill
OVER	30,000	5.16 per 1,000 gallons
<u>4 INCH</u>		
FIRST	50,000	\$271.88 Minimum Bill
OVER	50,000	5.16 per 1,000 gallons
<u>6 INCH</u>		
FIRST	100,000	\$529.88 Minimum Bill
OVER	100,000	5.16 per 1,000 gallons

MOUNTAIN WATER DISTRICT VERIFICATION OF RECOMMENDED RATES

RATE CODE	BILLS	GALLONS	REVENUE
01	49,377	232,955,179	\$1,739,992.89
01	51,474	245,798,424	1,826,320.79
02	607	19,349,874	110,448.90
03	588	58,145,434	317,615.85
04	24	4,431,700	23,200.69
05	60	15,791,743	84,548.35
06	24	3,136,490	19,183.24
37	1,360	11,561,407	86,550.32
38	140	1,613,220	12,409.11
39	85	1,868,474	13,112.91
40	36	520,680	4,865.49
41	12	111,310	1,328.59
42	12	262,174	2,221.00
43	24	512,965	4,541.51
47	12	575,000	4,282.37
50	12	3,812,041	6,861.67
51	12	516,270	4,236.92
60	12	676,748	10,377.16
63	12	1,972,800	15,469.68
70	12	4,257,000	31,356.99
80	12	4,994,000	40,478.30
99	163	0	3,237.50
SUB TOTAL		104,070	612,862,933
LINE LEAK ADJUSTMENTS(@\$3.28/1000 gallons)		10,417,940	\$34,170.84
TOTAL		104,070	623,280,873
			\$4,396,811.08